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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,625	06/01/2000	Makoto Sasaki	13629	8184

9629 7590 12/22/2003

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EXAMINER

HU, SHOUXIANG

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/555,625

Applicant(s)

SASAKI ET AL.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 2-10, 12-19 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 11 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s) _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Election/Restriction

1. Claims 1-21 are pending in this application; and claims 1, 11 and 20 are active in this Office action, in view of the previous Office action.

Drawings

2. The replacement drawings were received on 10/27/03. These drawings are approved.

Claim Objections

3. Claim 1, 11 and 20 are objected to because of the following informalities and/or defects:

Claim 1 recites the subject matters that the recited wire is coated with Ti along at least one side and with titanium oxide along at least three sides, but fails to clarify how many sides the wire has. According the disclosure (see Fig. 3), the wire has only four major sides; and, if at least one of them has already been covered with titanium, the recited titanium oxide would only cover at most three sides, instead of at least three sides. With respect to applicant's arguments relevant to the claim objections, it is noted that a gate electrode in a thin film transistor (TFT) is normally in the form of a gate line than extends to neighboring TFTs. Accordingly, the sides of the gate electrode in a TFT normally do not include any end portions that need protection coating(s).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 11 and 20, as being best understood in view of the above claim objections, are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki (JP 10-153788, 06/98; of record) in view of Whetten (US 5,153,754).

Masaki discloses a wire in a TFT LCD (see its DERWENT BASIC-ABSTRACT, and also see Figs. 2, 5A and 5B), comprising a Cu layer (32), wherein the wire is coated and in contact with a metal oxide layer (33b) along three sides; and the metal oxide can be titanium oxide. Masaki further teaches that the wire can also be coated and contacted along its bottom surface with a bottom coating film (33a); and that the top coating film and the bottom coating film can be formed with different materials, such as the top and bottom coating films (35 and 33a) shown in Fig. 5B.

Although Masaki does not expressly disclose that the bottom coating film can also be formed of titanium, one of ordinary skill in the art would readily recognize that Ti is an art-recognized common bottom coating material for good adhesion characteristics to the LCD substrate, as evidenced in Whetten (see col. 6, lines 26-30 and 47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the titanium bottom coating film of Whetten into the TFT LCD of Masaki, so that a TFT LCD with improved adhesion to the substrate would be obtained.

Regarding claim 20, an LCD device such as the one Masaki normally inherently comprises a second substrate opposing the TFT-forming substrate with the liquid crystal layer disposed therebetween.

Response to Arguments

5. Applicant's arguments filed on 10/09/03 have been fully considered but they are not persuasive.

Applicant's main arguments include: Masaki and Whetten, whether taken alone or in combination, do not teach or suggest the claim invention. In response, it is first noted that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Masaki teaches the claimed invention, including a wire (a Cu gate electrode, 32) coated and in contact with a titanium oxide layer (33b) along three sides along with a bottom coating film (33a), except that the bottom coating film can be formed of titanium. And, Whetten was cited for showing that Ti is also an art-known common bottom coating material for the gate electrode in TFT. Accordingly, the

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incorporation of Whetten's Ti-bottom coating into the gate electrode of Masaki would naturally result in the claimed invention.

In addition, it is further noted that the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as evidenced in Whetten, one of ordinary skill in the art readily recognizes that Ti is also an art-recognized common bottom coating material with good adhesion characteristics to the LCD substrate. It would therefore well within the ordinary skill in the art to incorporate the titanium bottom coating film of Whetten into the gate electrode in the TFT LCD of Masaki, in order to improve its adhesion to the substrate. Moreover, no evidence is found in Masaki for any teachings against the combination of the titanium bottom coating film and the titanium oxide coating film on the top and the sides.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is (703) 306-5729. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SH
December 16, 2003


SHOUXIANG HU
PRIMARY EXAMINER